Lab Framework Developments

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20.01.2020

September's Open Issues.

- *Tracking noisy pixels* → Qingyuan included this in the bonndaq analysis but PR was not yet created
- *Speed up PV dumps* → Florian created a pending PR
- *Speed up Elog submission*
  - → Idea was an elog pipe, which Felix B. started but couldn't finish
  - → Main problem was the pedestal taking in the CalibrationIOC, which I could solve differently
- *Reduce errors in PXD Elogserver* → I don't remember the problem but is running smoothly now
- *Include temperature measurement into DHH IOC*
  - → Finished by Dima and implemented in the startup sequence by Simon
  - → I adjusted lab framework and UtilityIOC to be backwards compatible (lab setups cannot upgrade)
  - → Proved to be working much more reliable and less error prone

Work in Progress from September.

- Unfortunately, many things still valid
- *Automatic ring detection in source scans:*
  - *Hua tested a neural net approach to identify rings*
  - *Varghese implemented a fitting procedure with templates*
  - *Promising results but more tests needed*

  → Varghese strategy easy and independent of training data (I will implement it in the framework now)
- *ADC scan and source scan*
  - *Not working with DHC (needed for mass testing at DESY)*
  - *First iteration of ADC scan ready, but not tested yet*
  - *Hua is working on the source scan*

  → No final code for multi module setups ready but fixes for DHC setups available
  good enough for mass testing with DHC setups

Python3.

- Python2 support ended in January

  → Transition necessary but P2 compatibility wanted to run lab setups as they are now

- Large clean up of code performed
- Pxd_sc_lab_framework, pxd_sc_testsetup and pxd_sc_configdb
  - Small adjustments in pyDepfetreader
  - Tested with P2 and P3 at DESY.
    - All runcontrol IOC, pedestal scans, hs-link scan, delays scan
- Please test the new code with lab setups
  - Have a look in the ‘pxd_software_framework’ Rocketchat channel how to run the new code
  - If everything works with P2, I can merge it with the master
- All new code must be P2 and P3 compatible!!!
  - Verify this before merging into the master
  - Very helpful https://python-future.org/compatible_idioms.html

CalibrationIOC.

- Very helpful tool but it also caused most of the problems for the shifter
- Large clean up of the code and improved readability by Simon
- Main focus was set on debugging and user friendliness
  - Improved stability by using CAThreads instead of CAProcess (unclear why this seems to help)
  - Stop local daq automatically when starting pedestal scan
  - Progress bar continues during upload of pedestals
  - Reduced time of pedestal taking
  - Improved upload of already taken pedestals

Open Issues.

- Mass testing offset calibration (entire matrix) not working in Master
- Automatic VNSubout determination not working for lab setups
- Elog pipe (Jira ticket was transferred to me…)
- Automatic ring detection in source scans
- ADC scan and source scan for DHC setups
- Add features to the abstraction layer